REMARKS

The 19 February 2003 official action addressed claims 1-32. Claims 1-5, 7, 9, 11-15, 17, 19, 21, 23-25, 27 and 29-31 are amended. Claims 1-32 are pending.

Drawings

Approval of the formal drawings filed with the application is requested.

1. Overview of amendments

Specification amendment

The specification is amended to supply the serial numbers of related applications that were not known at the time of filing of the present application. No new matter is added.

Claim amendments

Independent claims 1, 11, 21 and 27 are amended to clarify that the claims apply to the generation of metadata for transmission to a programming event receiver, with the metadata being descriptive of a programming event.

The independent claims are further amended to specify that the goodness of fit scores corresponding to categories of a classification hierarchy are numerical.

Claims 7 and 17 are further amended to specify the additional feature that metadata is generated for an individual program segment.

The claims are further amended to be consistent with the aforementioned amendments and to generally clarify their language and correct editorial errors.

No new matter is added.

2. Response to objections and rejections

Prior art rejections

Claims 1-6, 10-16 and 20-32 were rejected under 35 USC §102(e) as being anticipated by Lawler (U.S. 5,758,259). Claims 7-9 and 17-19 were rejected under 35 USC §103(a) as being obvious over Lawler in view of Hullinger (U.S. 6,295,092). It is believed that the present claims will be seen to be patentably distinguished from the cited references in view of the following discussion.

The claimed invention pertains to the generation of metadata that describes programming events (e.g. television programs or individual segments of television programs), and that is produced for transmission to programming event receivers where it will be used to determine programming events that are of interest to a particular viewer. For purposes of this reply, three groups of related claims are separately addressed.

Claims 1 and 11 and their dependent claims

In the claimed invention of claims 1 and 11, the metadata for transmission to a receiver includes numerical "goodness of fit" scores that are associated with categories of a classification hierarchy. Each goodness of fit score indicates the degree to which the associated category is descriptive of the programming event. Figure 8 of the application shows an example of a portion of such a classification hierarchy, and Figure 13 shows metadata that includes "category scores" (goodness of fit scores) that show the fit of a program to various categories of the hierarchy. From Figure 8 it is seen that the claimed classification hierarchy is comprised of branch structures of categories, in which categories are sub-categories of other categories. Associating numerical goodness of fit scores with categories that are related in a hierarchical manner provides a highly detailed description of a programming event. For example, a score for a given category (e.g., "Sports") provides some information about the programming event, but by also providing scores for subcategories of Sports (e.g. NFL) and providing scores for sub-categories of those sub-categories (e.g.

individual team names), the subject matter of the programming event is more precisely specified.

In accordance with claims 1 and 11, information that describes a programming event is received and analyzed to generate numerical goodness of fit scores for categories of the classification hierarchy. Paragraphs 75-76 at pages 19-20 of the application describe a manner in which these scores are generated using commercially available media searching or classification tools. The goodness of fit scores for the categories are stored as part of the metadata that describes the programming event. In addition, keywords for the programming event are determined using the same descriptive information. The keywords are stored together with category goodness of fit scores, time data and descriptive data to constitute metadata for the programming event. This metadata may thereafter be transmitted to a receiver where it is used to identify programs that may be of interest to a particular user.

Lawler does not teach the features of claims 1 and 11 or their dependent claims. Lawler generally teaches the manner in which metadata is processed in a receiving device to determine programs of interest, whereas the present claims are directed to the production of the metadata prior to its transmission to a receiving device. It is noted that the claims have been amended to emphasize this difference. For example, claim 1 now explicitly recites "A method for generating ***metadata for transmission to a programming event receiver***, the metadata ***describing a programming event***..." In Lawler, examples of the metadata or "programming data" that describes a program are shown in Tables 1A, 1B, 1C and 1D, and described at col. 5, line 66 - col. 6, line 32. It is seen there that Lawler's program data simply lists words that are associated with a program, such as the names of its director and actors. Although Lawler does not provide a detailed discussion of how the programming data is produced, it is clear that its production does not involve processing descriptive information to generate numerical goodness of fit scores for categories of a classification hierarchy, whereas claims 1 and 11 are specifically require to that feature.

It is noted that Lawler's Table 2 shows descriptive words and associated numerical scores. However, as made clear in the text at col. 7, line 62 - col. 8,

line 43, this table is a "viewer preference table" that is generated in the receiving device and represents an aggregate count of the descriptive words associated with all programs that the viewer has received. These counts are used to prioritize future programs based on the descriptive words contained in the programming data for each future program (col. 8, lines 56-62). Unlike the metadata of claim 1, the data of the viewer preference table is not descriptive of a programming event, it is not produced for transmission to a receiver, and it is not generated by providing descriptive data as input to a classification tool.

Therefore claims 1 and 11 are not anticipated or suggested by Lawler.

In regard to claims 2 and 12, which specify determination of keyword goodness of fit scores, the official action cites col. 9, lines 7-11. However the cited passage teaches that the viewer's device sums the number of programs viewed by the viewer that involve a particular genre and a particular person. The summation is performed in the process of generating metadata to be transmitted to a receiver, and does not provide a goodness of fit scores for categories of a classification hierarchy.

In regard to claims 3 and 13, which specify that keywords are selected by thresholding based on their goodness of fit scores, the official action cites col. 9, lines 53-57. However the cited passage teaches that a program selection may involve thresholding based on viewing history, not selection of keywords to be included in metadata based on thresholding of goodness of fit scores.

In regard to claims 4 and 14, which specify the selection of a representative subset of representative categories based on their numerical goodness of fit scores, the official action cites col. 10, lines 20-29. However the cited passage teaches that in selecting programs for viewing, certain features such as availability of closed captioning can be used as tie-breakers, which is unrelated to the subject matter of claims 4 and 14.

In regard to claims 5 and 15, which specify that the date from which programming event metadata is generated comprises descriptive data, the official action cited col. 6, lines 2-6. However the cited passage teaches the contents of EPG data, rather than its use for generating programming event metadata.

In regard to claims 6 and 26, which specify that the date from which programming event metadata is generated comprises production data and timing data, the official action cited col. 2, lines 21-29, and Tables 1A and 1B. However the cited text teaches that when a viewer seeks a recommendation for viewing, processing is performed using EPG guide data for the current time slot, while Tables 1A and 1B teach that EPG data includes simple programming characteristics such as genre and actors. In contrast, when read in context of the present application, the term "production data" in claims 6 and 26 refers to data generated during production of the programming event itself, such as scripts, timing cues etc., and claims 6 and 26 refer to the process of generating metadata, whereas the cited portions of the reference refer to processing of metadata to provide viewing recommendations.

Therefore the claims depending from claims 1 and 11 are not anticipated or suggested for these additional reasons.

Claims 7 and 17 and their dependent claims

In the claimed invention of dependent claims 7 and 17, which depend from claims 1 and 11, it is specified that individual metadata for individual segments of a programming event are generated by determining the time and duration of individual segments of the program, and then generating metadata for the segments using the descriptive data that is specific to each segment.

These features of claims 7 and 17 were asserted to be suggested by Hullinger. Hullinger teaches a system that analyzes closed caption data to identify the individual segments of a news broadcast and to generate descriptions (anchor, topic, etc.) that characterize each segment (e.g. col. 4, lines 29-56). However, Hullinger's system uses this function for the purpose of producing individual segment data that is then correlated with ratings data to identify those characteristics of news stories that produce the highest ratings (e.g. col. 2, lines 54-60). Hullinger does not use individual segment data for producing individual segment metadata for transmission to programming event receivers, nor does Hullinger suggest such a use. Hullinger also does not teach or suggest providing the individual segment data as input to a classification tool

to generate goodness of fit scores for categories of a classification hierarchy. Absent any teaching or suggestion of these features which are required by the claims, claims 7 and 17 and their dependent claims are not obvious in view of Lawler and Hullinger for these reasons.

With regard to claims 8 and 18, which refer to processing production data to conform to a standard delimited format, the official action cites Hullinger's Table I. However Table I shows counts of topics occurring during a news program, whereas claims 8 and 18 refer to a type of pre-processing that is performed on production data to give it a consistent format so that it can be used for generating metadata.

With regard to claims 9 and 19, which refer to receiving program descriptive data for use in generating metadata, the official action cites Table II of Hullinger and Table 2 of Lawler. However Table II of Hullinger shows counts for topics occurring during news program, and Table 2 of Lawler shows counts of topics occurring for programs viewed by a viewer. Neither shows data that is processed to generate metadata for transmission to a receiver that is descriptive of a programming event.

Claims 21 and 27 and their dependent claims

In the claimed invention of claims 21 and 27, the metadata for transmission to a receiver includes keywords that are each provided with numerical "goodness of fit" scores indicating the degree to which the keyword fits within various categories of a classification hierarchy. Figure 13 shows metadata that includes keywords and their associated category goodness of fit scores the fit of the keyword to various categories.

In accordance with claims 21 and 27, information that describes a programming event is used to determine candidate keywords for the programming event, i.e. words that may be used as keywords for the programming event. Each candidate keyword is then provided as input to a classification tool generate numerical goodness of fit scores for the categories of the classification hierarchy. Paragraph 78 at page 21 of the application describes the use of a categorization tool for generating goodness of fit scores

for key words. Keywords are then selected from among the candidate keywords based on their goodness of fit scores, and the selected keywords and their goodness of fit scores are stored as part of the metadata that describes the programming event. This metadata may thereafter be transmitted to a receiver where it is used to identify programs that may be of interest to a particular user.

Lawler does not teach the features of claims 21 and 27 or their dependent claims. Lawler generally teaches the manner in which metadata is processed in a receiving device to determine programs of interest, whereas the present claims are directed to the production of the metadata prior to its transmission to a receiving device. Claims 21 and 27 have been amended to explicitly emphasize that they are directed to "generating ***metadata for transmission to a programming event receiver***, the metadata ***describing a programming event***..." Further. as discussed above, Lawler's "programming data" shown in Tables 1A, 1B, 1C and 1D simply lists words that are associated with a program. If the terms used in Lawler's programming data are considered to be keywords, then it is clear (e.g. from Tables 1A-1D) that the keywords are not associated with numerical goodness of fit scores for categories of a classification hierarchy, and so it cannot be asserted that Lawler teaches metadata comprising keywords and associated goodness of fit scores, or generating goodness of fit scores for candidate keywords and then selecting keywords based on their goodness of fit scores.

As discussed above, the words and numbers shown in Lawler's Table 2 are the elements of a viewer preference table that is generated in the receiving device. It is not descriptive of a programming event, it is not produced for transmission to a receiver, and it is not generated by a classification tool.

Therefore claims 21 and 27 are not anticipated or suggested by Lawler. The claims depending from claims 21 and 27 are also not anticipated or suggested for these reasons.

With regard to claims 23 and 29, which refer to correlating the goodness of fit scores of keywords with the goodness of fit scores for a programming event as a whole to select a set of keywords for the programming event, the official action cites Lawler at col. 8, lines 36-44 and 56-62. However, the first

cited passage discusses limiting the number of criteria that are used for tracking a viewer's viewing habits, while the second cited passage discusses correlating viewer profile data with data describing a program. Therefore neither of the cited passages addresses selecting keywords that describe a program for inclusion in the program metadata, or correlation of the numerical scores associated with categories of a classification hierarchy for the keywords and for the programming event as a whole.

With regard to claims 24 and 30, which refer to selecting keywords based on numerical goodness of fit scores associated with categories of a classification hierarchy for the keywords, the official action cites Lawler at col. 9, lines 53-57. However, the cited passage discusses the problem of a viewer's preferences correlating equally with more than one program, and does not discuss selecting keywords for describing a programming event using numerical scores associated with categories of a classification hierarchy.

With regard to claims 25 and 31, which refer to storing a highest numerical goodness of fit score along with a keyword, the official action cites Lawler's Table 2. However Lawler's Table 2 shows counts of topics occurring for programs viewed by a viewer. It is not related to the creation of data describing a particular program, and does not involve the use of numerical scores associated with categories of a classification hierarchy.

With regard to claims 26 and 32, which refer to limiting the number of keywords stored in programming event metadata, the official action cites Lawler's col. 8, lines 35-44. However, the cited passage discusses limiting the number of criteria that are used for tracking a viewer's viewing habits, and does not discuss limiting the number of keywords used to describe a programming event.

Therefore it is believed that each of dependent claims 23-26 and 29-32 recites features that further distinguish it from the cited references.

The foregoing amendments and remarks address all bases for objection and rejection and are believed to place the case in condition for allowance. The examiner is invited to contact the undersigned to resolve any remaining issues.

Respectfully submitted,

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